



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/609,002	06/27/2003	Kin Man Ho	16074-002001 / YC:JCL:K11	8417
26161	7590	08/24/2004	EXAMINER	
FISH & RICHARDSON PC 225 FRANKLIN ST BOSTON, MA 02110			PRINCE, FRED G	
			ART UNIT	PAPER NUMBER
			1724	

DATE MAILED: 08/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/609,002

Applicant(s)

HO ET AL.

Examiner

Fred Prince

Art Unit

1724

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 14 July 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Claim Objections***

1. Claims 16-19, 24, and 25 are objected to because of the following informalities:  
In line 2 of each claim, respectively, "or" should be changed to --and-- since each member is a part of the finite group claimed. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-2, 11-13, 16-17, and 20-25 are rejected under 35 U.S.C. 102(b) as being anticipated by Jones (WO 99/47459).

Jones teaches a system and method of treating wastewater with a first tank (5) interconnected to a second tank (12), the tanks having means for influent and means for effluent, and carriers (page 6, line 13; page 19, lines 29-33), wherein the selective growth of microorganisms occurs in each tank (page 6, lines 7-10 and 30-33) and first and second biomasses having different characteristics are produced and first and second sludges are formed, and wherein at least one of the recited materials is removed (page 22, lines 30-32).

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kernn-Jespersen et al. in view of Reimann et al.

Kernn-Jespersen et al. disclose a first tank (1) interconnected to a second tank (3), the tanks having means for influence and means for effluence, and carriers (col. 3, lines 57-62), first and second stage generation means (115-116; 25-26; Fig. 2), wherein the selective growth of microorganisms occurs in each tank and first and second biomasses having different characteristics are produced and first and second sludges are formed (col. 4, lines 1-13; col. 7, lines 27-57), wherein the sludges have a greater density than the wastewater since the sludge settles in the tanks, and wherein at least one of the recited materials is removed (col. 2, lines 35-44; col. 4, lines 27-41). Kernn-Jespersen et al. do not explicitly disclose independently controllable means for stage generation and providing an opening in a wall to interconnect tanks.

In any case, Reimann et al. disclose the well known concepts of providing independently controlled stage generators in order to, for instance, agitate or aerate mixed liquor (col. 5, lines 52-55) and providing an opening in a wall to interconnect tanks in order to provide treatment in a single basin (col. 3, lines 46-52).

It would have been readily obvious for the skilled artisan to have modified the system of Kernn-Jespersen such that it includes providing independently controlled stage generators in order to agitate or aerate mixed liquor, as suggested by Reimann et al.

Per claim 3, Kernn-Jespersen et al. do not disclose first and second tanks disposed a vertical distance from each other. In any event, the record does not show, e.g., by comparative test data, that Applicant is able to obtain any new and unexpected result by disposing the tanks a vertical distance from each other; and absent such a showing, disposing the tanks a vertical distance from each other is deemed to be an obvious matter of choice in design, insufficient to patentably distinguish the claim over the prior art.

Per claims 5-7, 14, and 18, Kernn-Jespersen et al. do not disclose providing a third tank for a third bioreaction stage. Reimann et al. disclose providing a third bioreaction stage having a third microorganism in order to remove a different component from the waste water (col. 3, lines 46-49; col. 4, lines 8-32).

It would have been obvious for the skilled artisan to have modified the invention of Kernn-Jespersen et al. by adding a third bioreaction stage having a third microorganism in order to remove a different component from the waste water, as suggested by Reimann et al.

Per claims 8-10, 15, 19, and 28-29, Kernn-Jespersen et al. do not disclose a fourth stage for a fourth microorganism. It is submitted that as Kernn-Jespersen as

modified by Reimann et al. makes apparent that each separate stage can produce separate microorganisms to degrade different components in the waste stream, it would have been well within the purview of the skilled artisan to have provided any number of stages in order to provide as many stages and separate microorganisms as desired.


### ***Conclusion***

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. References are cited of interest to show the state of the art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fred Prince whose telephone number is (571) 272-1165. The examiner can normally be reached on Monday-Thursday, 6:30-4:00; alt. Fridays 6:30-3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on (571) 272-1166. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Fred Prince  
Primary Examiner  
Art Unit 1724

fgp  
8/16/04